SEP 29 1982

MEMORANDUM FOR: Thomas Novak, Assistant Director
for Licensing
Division of Licensing

FROM: William V. Johnston, Assistant Director
Materials & Qualifications Engineering
Division of Engineering

SUBJECT: OPEN ITEMS IN THE BYRON STATION
SAFETY EVALUATION REPORT

Plant Name: Byron Station Units 1 and 2
Docket Nos.: 50-454/455
Responsible Branch: LB#1
Project Manager: S. Chestnut
Chemical Engineering Branch Reviewer: D. J. Kubicki
Requested Completion Date: ASAP
Review Status: 7 open items

Our Byron Safety Evaluation Report identified 7 open items pertaining to fire protection. Since we issued the SER, we made several attempts, including a meeting and telephone conversations, to resolve these issues. The following is the current status of the open items.

1. VI.B Safe Shutdown Capability. The licensee's safe shutdown report of June 14, 1982 and answers to staff questions are under review. We will report on this item in an upcoming SSER.

2. VI.C Alternate Shutdown Capability. Per item 1, we will report on this issue in an upcoming SSER.

3. VI.D Control of Combustibles. The applicant has not agreed to conform to Section C.5.d(2) of BTP CMEB 9.5-1 as it relates to the routing of hydrogen piping.

4. VIII.A Primary Containment. By letter dated May 5, 1982, the applicant submitted additional information concerning the need for an oil collection system for the reactor coolant pumps. We will report on this item in an upcoming SSER. We asked the applicant to provide us with the cost of installing the collection system at Zion, and to provide us with the exposure of changing the mechanical seal before and after the oil collection system was installed.

5. VI.G Lighting and Communication. The applicant has not agreed to protect the radio repeaters from fire damage in accordance with Section C.5.g of BTP CMEB 9.5-1 and has not provided justification for a deviation from the guidelines.

6. VIII.C Cable Spreading Room. The applicant has not agreed to provide a fixed, water-based fire suppression system in accordance with Section C.7.c of BTP CMEB 9.5-1 and has not provided sufficient justification for a deviation from the guidelines.

7. IX. Summary of Deviations from CMEB 9.5-1. The applicant has not committed to meeting the guidelines of BTP CMEB 9.5-1 and has not justified these deviations. Our consultant, Gage-Babcock and Associates, (GBA) as part of their review, identified a number of deviations from BTP CMEB 9.5-1. These deviations were the subject of a conference call with the licensee on September 8, 1982. The licensee stated that several of these deviations were adequately addressed or eliminated in the revision to the Byron/Braidwood Fire Protection Report, dated August 16, 1982 which we received after the telephone conference was scheduled. This information is under review and will be reported on in an upcoming SSER. The licensee verbally committed to study further the remaining deviations identified by GBA and to provide additional information at a later date. These deviations are listed in Enclosure 1.

In light of the amount of time already expended without successful resolution of the open items, we suggest that a meeting be arranged with the appropriate representatives of the applicant to resolve the open issues. The applicant should be informed of the need to conform with the guidelines of BTP CMEB 9.5-1, and to identify and justify deviations. Enclosure 2 contains a summary of our position with regard to the fire protection for these areas.

William V. Johnston

William V. Johnston, Assistant Director
Materials & Qualifications Engineering
Division of Engineering

Contact: D. J. Kubicki
X24564

cc:

R. Vollmer	S. Pawlicki
D. Eisenhut	T. Sullivan
V. Benaroya	J. Taylor
A. Schwencer	D. Kubicki
F. Rosa	S. Ebneter, Region I
O. Parr	T. Conlon, Region II
M. Srinivasan	C. Norelius, Region III
R. Ferguson	G. Madsen, Region V
S. Chestnut	P. Sternberg, Region V
K. Kiper	R. Barnes (Gage-Babcock)

Enclosure 1

Summary of Deviations from CMEB 9.5-1
In the Byron Fire Protection Program

Our consultant, Gage-Babcock and Associates, identified a number of deviations from CMEB 9.5-1 in the Byron fire protection program. These deviations were the subject of a conference call between the applicant and the staff on September 8, 1982. The applicant stated that several of the deviations were addressed or eliminated in the revision to the Byron/Braidwood Fire Protection Report dated August 16, 1982, which was received after the telephone conference had been scheduled.

We are reviewing this information and will report on them in an upcoming SSER. The applicant verbally committed to study further the remaining deviations, listed below, and provide us with additional information at a later date:

1. The applicant's submittals do not indicate if any self-contained positive pressure air masks are reserved only for fire brigade use as stipulated by Section C.3 of CMEB 9.5-1. In addition, the applicant has not committed to provide an on-site, 6-hour supply of reserve air and extra air bottles for fire brigade breathing apparatus.

2. Fire pump alarms indicating pump running and driver availability are provided in the control room for the motor-driven fire pump. The diesel fire pump alarms for these conditions indicate only as a trouble alarm in the control room. "Failure to start" alarms not provided as stipulated by Section C.6.a of CMEB 9.5-1. Separate alarms should be provided in the control room to indicate pump running, driver availability and failure to start for each pump. In addition, low fire main pressure should also be alarmed in the control room.

3. The applicant has not supplied sufficient information to provide reasonable assurance of the reliability of the fire protection water supply (Section C.6.b). Specifically, the applicant proposes to use the basin of the cooling tower as a source of water for fire protection. We need to know if the required quantity of water (336,000 gallons) will always be available from the basin during all modes of plant operation.

   The valve arrangement at the fire pumps is such as to prevent pumping capability by the diesel pump during testing of the motor driven pump. This must be changed to assure that one pump is available at all times to supply the required fire flow.

   The applicant has provided cross-connections between the fire protection and ESW systems to provide water to standpipe hose stations in the event of a SSE. The applicant needs to verify that the ESW system can supply at least the two most hydraulically remote hose stations with adequate flow and pressure. In addition, check valves should be provided in the cross-connections to prevent using fire protection water for any other purpose.

4. The design of the standpipe system does not conform to Section C.6.c of CMEB 9.5-1. Specifically, the following plant areas are not provided with adequate hose stream protection:

   Zone 3.1-1, Unit 1 Electrical Cable Tunnel
   Zone 3.4A-1, Unit 1 Cable Riser Area
   Zone 4.1-1, Unit 1 Computer Room
   Zone 9.2-1, Diesel Generator Room 1A
   Zone 9.4-1, Diesel Generator Day Tank Room 1B
   Zone 10.1-1, Diesel Fuel Oil Storage Room 1B
   Zone 10.2-1, Diesel Fuel Oil Storage Room 1A
   Zone 11.6A-0, Laboratory HVAC Equipment Room

In addition, lengthy runs of 1½ inch pipe will be used to supply select hose stations. Hydraulic calculation will have to be provided to verify that an adequate quantity of water at sufficient pressure will be available at the hose nozzles.

5. The applicant has not committed to provide water-type portable fire extinguishers for the control room in conformance with Section C.7.b of CMEB 9.5-1.

6. The applicant has not committed to provide smoke detectors in all panels (including unventilated panels) in the control room that contain safe shutdown related circuitry (Section C.7.b)

7. The applicant has not committed to provide curbs at the entrance to each diesel generator room in conformance with Section C.7.j of CMEB 9.5-1.

Enclosure 2
Chemical Engineering Branch/Fire Protection Section
Summary of Staff Requirements to Resolve Open Items
Byron Station Units 1 & 2
Docket Nos. 50-454/455

VI.G Lighting and Communication

In the Fire Protection SER, our concern was that the two repeaters for the portable radio communications units are exposed to fire damage, which would result in the loss of the emergency communication system. The two repeaters are located adjacent to one another on the roof of the instrument shop, on the turbine floor adjacent to the control room. Fire protection for this area consists of portable fire extinguishers and manual hose stations. This protection is insufficient to preclude loss of both repeaters due to a single fire and does not conform with Section C.5.g of BTP CMEB 9.5-1. To conform to this guideline, the applicant should either provide a fixed, automatic fire suppression system to prevent a fire from affecting both repeaters or should separate the repeaters by means of an acceptable fire barrier or relocate one repeater to another fire area.

VIII.C Cable Spreading Room

In the SER, our concern was that the protection for the cable spreading rooms was insufficient to prevent fire damage. The applicant has proposed gaseous fire suppression systems to protect these areas. The protection alone is insufficient to provide reasonable assurance that no fire damage will occur and does not conform with Section C.7.c of BTP CMEB 9.5-1 which stipulates that in the primary fire suppression system in cable spreading rooms be a water-based system. A water based system offers the advantages of being: proven effective, less complicated in design, more dependable, able to discharge the fire suppression agent continuously and for long periods of time.

A gaseous fire suppression system is less effective on cable fires; more complex in design and more prone to failure; is subject to the inability to maintain the design concentration of gas by virture of unprotected room openings; and has a limited, finite amount of fire suppressing agent.

To conform to the above guideline, the applicant should provide either an automatic water system such as closed-head sprinklers, open-head deluge system, or a directional water spray system, or the applicant should provide a manually activated water suppression system as a supplement to the proposed gaseous fire suppression systems.